Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

The fact that at the nearest exposures the calciferous lies directly upon crystalline rock is the author's reason for referring the last two doubtful rocks to the Algonkian or Archean. (Proceeds. Rochester Acad. Sci., Vol. i, p. 182.)

MINERALOGY AND PETROGRAPHY.[1]

The Eruptives of Cabo-de-Gata.—The eruptive rocks of the Cabo-de-Gata region in southeastern Spain are pumiceous, glassy and granular liparites, andesites, dacites and an occasional basanite. The liparites are rare as fragments in a liparitic tufa and as small dykes cutting the fragmental rocks. The dacites cover a large stretch of country. They are the most abundant types in the region, and are developed in great variety. Two principal groups are distinguished. The first is characterized by the abundance of its phenocrysts, among which are large hornblendes, and by the possession of augite and hypersthene. Augite occurs in their groundmass, quartz is scarce, and their feldspar is almost exclusively plagioclase. In the second group phenocrysts are less common. Biotite is the predominant colored constituent. Quartz and sanidine are both plentiful and the rock thus verges toward the liparites. All the components of these dacites have been very minutely described by Osann.[2] But few of them present special peculiarities. The most interesting features connected with them are the alteration of hornblende into pyroxene and the intergrowth of augite and bronzite, with the pinacoids and prisms of the two minerals parallel. The andesites, which are best developed in the southern and southeastern parts of the region, are hornblendic and biotitic varieties. A mica andesite from the Rambla del Esparto contains an enormous number of granular inclusions composed of cordierite (?) biotite, spinel, sillimanite, corundum, andalusite, plagioclase, rutile, zircon, garnet, quartz and apatite. They are regarded as having resulted from the metamorphism of blocks brought from below, and the crystallization of andesite components upon them. The spinel occurs in dark-green and grayish-red crystals, the former sometimes surrounding the latter. A dacite from Mazarron contains phenocrysts of cordierite,[3] whose prismatic crystals often reach a length of 1 cm. The forms observed on them are ∞P, $\infty P\breve{\infty}$, $\infty P\bar{\infty}$, oP, P, and $\frac{1}{2}P$. In the neighborhood of ore veins the mineral is changed into pinite.

---

[1] Edited by Dr. W. S. Bayley, Colby University, Waterville, Me.

[2] Zeits. d. Deutsch. Geol. Ges. 1891, xliii, p. 688.

[3] Cf. AMERICAN NATURALIST, 1890, p. 69.

A Melilite Rock from North America.—From the bed of the Ottawa River, near Ste. Anne, not far from Montreal, Can., Mr. Adams[4] has obtained the first melilite rock described from North America. It occurs as a dyke in Potsdam conglomerate. The rock, which has a fine-grained, dark groundmass, often contains phenocrysts of green and red olivine, biotite and pyroxene. The matrix in which these lie consists of small biotites, olivines and pyroxenes, between which lies a still finer aggregate of melilite, pyroxene needles and a small quantity of a colorless mineral that may be nepheline. Perofskite, apatite and magnetite are also present in it. The brown biotite is an anomite, with a small biaxial angle. It consists of an interior inclusion-free nucleus, usually with a rounded outline, surrounded by a zone filled with augite microlites and bounded by crystal faces. The olivine contains but little iron (12.65%). The red color of some grains is due to inclusions of iron oxide. Its alteration is sometimes into serpentine, but more frequently into ferriferous magnesite and breunerite, whose composition is $Mg\,CO_3 = 64.83$; $Fe\,CO_3 = 26.16$; $Ca\,CO_3 = 1.66$; impurities $= 7.35$. The alteration begins along cleavage cracks and proceeds inward from the peripheries of the olivine grains. The pyroxene phenocrysts are colorless and have an extinction of 42°. Like the biotite the augite grains are also bordered by a zone of a light brown color, which is of the same substance as that of the smaller phenocrysts and of the needles in the groundmass. The extinction in the zone is often 16° greater than that of the nucleus. The characteristic mineral of the rock, the melilite, possesses the peg structure and all the other peculiarities of this component of the Alnö specimens. Basal sections have rectangular or octagonal outlines, while prismatic sections are often flattened parallel to oP. The rock differs from the type alnoite in possessing no feldspar. The author thinks it is connected in some way with the Montreal volcanic center, forming Mt. Royal, which, as is well known, consists largely of eleolite syenites and related rocks. The composition of the rock follows:

SiO_2	TiO_2	Al_2O_3	Fe_2O_3	FeO	CaO	MgO	K_2O	Na_2O	Co_2 H_2O
35.91	.23	11.51	2.35	5.38	13.57	17.54	2.87	1.75	9.40

The Sanidinite Bombs of Menet and Monac.—The sanidinite bombs included in the trachytes of Menet, Cantal and of Monac,

---

[4] Amer. Jour. Sci., April, 1892, p. 269.

Haute-Loire, France, contain many interesting minerals, short descriptions of which are given by Lacroix.[5] In those from the first-named locality are vitreous orthoclase, anorthite microperthite, zircon in brilliant, transparent, wine-red and in colorless or brown and light rose crystals, sphene, apatite, corundum and biotite. The last named mineral is an original component of the rock yielding the bomb, while the zircon, sphene and apatite are certainly new products. The Monac sanidinites differ from those of Menet principally in being saturated with secondary substances.

Igneous Rocks from Montana.—Among the rocks found in the mountains of Montana and described by Lindgren[6] are dacite, trachytes, basalts and augite-syenites. One variety of basalt consists of fresh olivine, augite and analcite in a groundmass composed of magnetite, apatite andanalcites of a second generation. The rock was described in one of the Tenth Census Reports, where the analcite was stated to be in all probability an alteration product of nosean. The author now regards the mineral as unquestionably original.

Petrographical News.—Mr. Cole[7] describes a section of devitrified perlitic obsidian from Rocche Rosse, Lipari, in which the rock is much shattered. Around the fragments of glass thus formed spherulitic substance has resulted from the devitrification of their material. Beginning at the cracks separating the fragments the devitrification has progressed inward until a spherulitic zone now surrounds each piece of glass.——The mica schist[8] around the granite of the Schneekoppe in the Riesengebirge, Silesia, has been changed by the eruptive from a muscovite-garnet-quartz-schist to a schistose aggregate of quartz, muscovite, biotite, andalusite, and new, blood-red garnets. The biotite is in isolated small plates that are quite different in character from the flakes of muscovite adhering to the quartz grains in the original rock.——A few augite, saussurite and quartz diorites, a gabbro and several porphyries, porphyrites and diabases from the hills surrounding the Muir Glacier, in Alaska, are briefly described by Williams[9] in an appendix to Reid's account of the glacier.——In the olivine diabase of a dyke cutting the Sioux quartzite, in Minnehaha Co.,

[5] Bull. Soc. Min. d. Fr., xiv, 1892, p. 314.

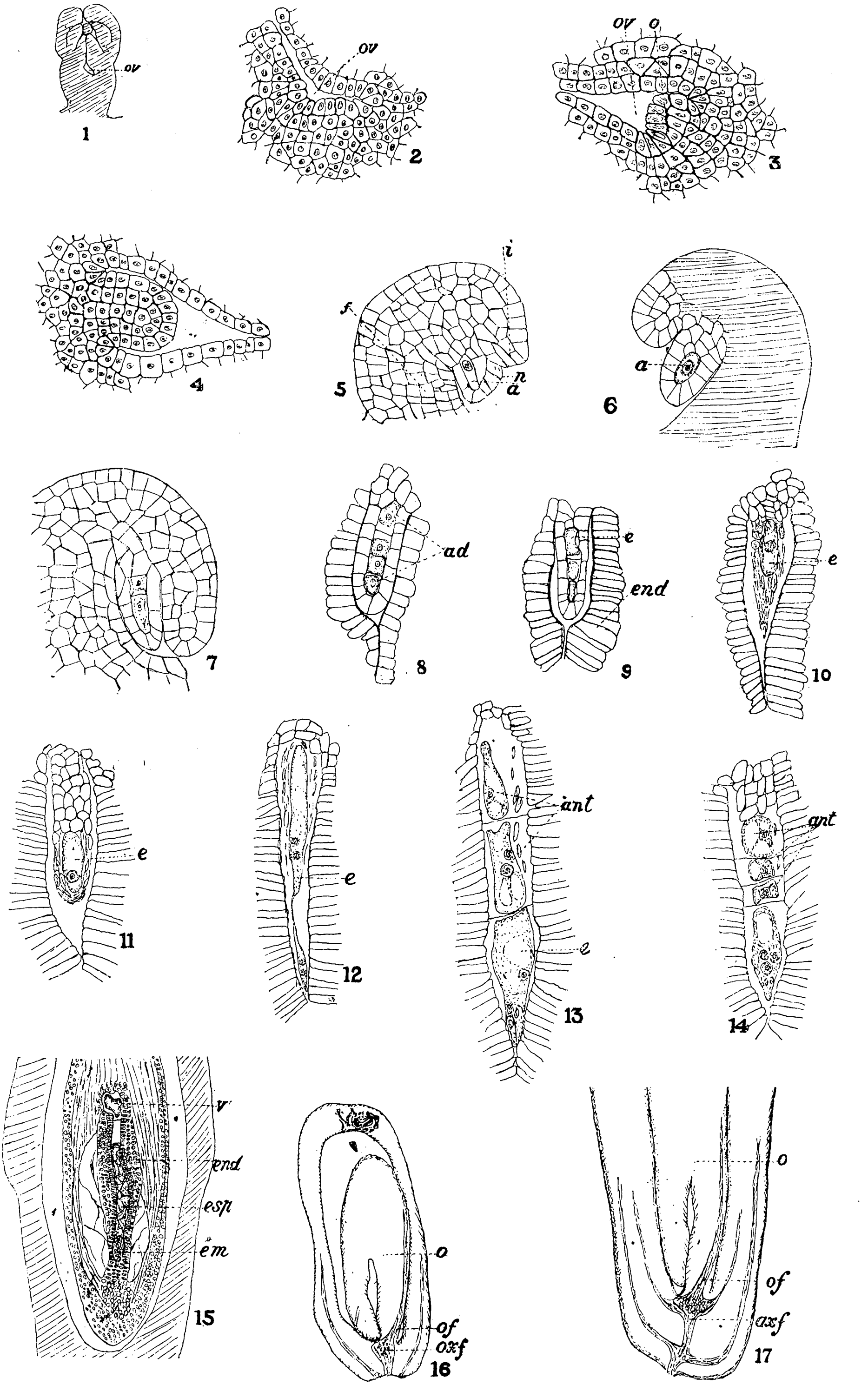
[6] Proc. Cal. Acad. Sci., 2, vol. iii, p. 39.

[7] Mineralogical Magazine, ix, p. 272.

[8] Zeits. d. Deutsch. Geol. Ges. xliii, 1891, p. 730.

[9] Nat. Geog. Mag., Washington, iv, p. 63.

PLATE XX.



Norris, on *Grindelia.*

S. Dak., Messrs. Culver[10] and Hobbs find that the reddish to yellowish-brown diallage is strongly pleochroic.

Mineralogical News.—*General Crystallographic.*—Wyrouboff, in the continuation of his crystallographic study of closely related double salts of sulphuric, selenic and chromic acids, has reached some exceedingly interesting results bearing upon isomorphism. After carefully measuring the crystals of ten of these compounds and comparing their optical properties, he finds that while several of them are crystallographically similar these same compounds possess quite different optical characteristics. $Fe\ K_2(SO_4)_2$, $Mn\ K_2(SO_4)_2$ and $Mn\ K_2(SeO_4)_2$ are optically as well as morphologically similar. Since the optical properties of crystals change when they are subjected to changes of temperature it follows that these properties are dependent upon the arrangement of the molecules—upon the character of the crystal network. Isomorphous bodies are those that possess identical networks, consequently isomorphous bodies are those that are similar morphologically and at the same time optically, and in which the changes suffered under similarly changed conditions are similar. The magnesian sulphates with seven molecules of water are good examples of a truly isomorphous group. There is another kind of isomorphism embracing those bodies in which the morphological properties are similar but the optical ones different. In such bodies, since the arrangements of the molecules in the two intermingled substances are different, there should be evidence in these of optical anomalies, which are not apparent in the simple compounds, and this is found frequently to be the case. A further conclusion drawn by the author from his experiments is to the effect that while in general, substances whose chemical composition is analogous have similar crystalline forms, it does not necessarily follow that isomorphous bodies possess analogous compositions; they need merely to be built upon the same plan, possess identically arranged networks. Many of the views put forth in the paper are novel, and some of them are rather startling. We shall look forward with much interest to their discussion by German mineralogists.——The relation between symmetry and the chemical composition of crystals continues to attract the attention of mineralogists theoretically inclined. Fock[11] now suggests that the method by which the problem is to be attacked is through the aid of stereochemistry. He assumes that the crystal particles have the same symmetry as the crystal individual, and seeks to trace the symmetry of the particle to the symmetry of the chemical molecule as its source. According to the conception of most chemists the carbon atom may be represented by a point with four bars extending toward the four corners of a circumscribed tetrahedron. The symmetry of the carbon molecule is thus comparable with the symmetry of the crystallized carbon—diamond. With this suggestion as a basis the author shows how the crystallization of graphite and of some of the carbonates may be explained, but at the same time he confesses that few practical results can follow from the suggestion until we know more about the composition of solid substances.

---

[10] Trans. Wis. Acad. Sci., viii, 1891, p. 206.

[11] Zeits. f. Kryst., xx, p. 76.

Notes.—An attempt to discover the reason for the variation in the pyramidal angles of *arsenopyrite* and to settle its composition has been made by Weibull,[12] who has examined crystals from Silfberg, Delane, and other localities in Sweden, and from the well-known occurrences in Europe. Among the Silfberg crystals three types were recognized, on the first of which the predominant forms are ∞P and $P\breve{\infty}$. Their axial ratio is .6841 : 1 : 1.1910, and composition (Fe Co Ni) $(S\ As)_2$. On the second type the same forms are observed with the addition of $\frac{1}{2}P\breve{\infty}$, but the crystals are usually prismatic parallel to $\breve{a}$. Their axial ratio is .6830 : 1 : 1.1923 and composition Fe S As. Crystals of the third type are long prismatic in the direction of *c* and are bounded by the same planes as are found in the second type. Their axial ratio is .6724 : 1 : 1.1896. Crystals from other localities show differences in composition and in axial ratio, and these differences are expressed in differences in habit. The formula best representing the composition of the mineral is thought to be $Fe(S\ As)_2$, and variations from it are thought to be due to inclusions in the material analyzed. If $Fe(As\ S)_2$ be considered the normal arsenopyrite ten per cent. of $Fe\ S_2$ may be replaced by $Fe\ As_2$, or the reverse, and the replacement will affect the axial ratio to a noticeable extent, an increase in $Fe\ S_2$ tending to increase the lengths of *a* and *c*. The substitution of Co and Ni for Fe affects the axes in the same way.——In an exhaustive article on the mineral deposits of Leogang in Salzburg, Buckrucker[13] gives a brief account of the region and a detailed description of the many minerals occurring therein. Thirty-two distinct species are referred to in the article, some briefly, others very extensively. Among the latter are *dolomite*, *aragonite*, *strontianite* and *celestite*. $2\ E_{Na}$ for aragonite is 30° 43.5′. $2\ V_{Na}$ for strontianite is 6° 59′ 12″

---

[12] Ib., p. 1.

[13] Zeits. f. Kryst. xix, p. 113.

and 2 E_{Na} for celestite is 87° 40′ 20″.——Mügge[14] has made an interesting study of quartz crystals imbedded in eruptive rocks. These were isolated by treatment of thin slices of the rocks with HF, and the etched figures produced upon them by the reagent were investigated. Of 888 individuals examined 382 were found to be simple, 506 twins of either right or left handed crystals, and 12 twins of right and left crystals. Pyrogenous quartzes like those deposited from solution are thus found to be more common in twinned than in simple forms. ——Lacroix[15] contributes a few notes on French minerals, especially those from the Central Plateau. He finds *leucite* forming veins in the basalt of Mt. Doré, with peripheral bands of feldspar. *Christianite* crystals imbedded in calcite occur in calcified inclusions in a basalt dyke at Montaudoux, Puy-de-Dôm. The same mineral is in the sanidinite bombs of Monac, and is associated with chabasite at Araules in the Haute-Loire. *Mesotype, analcite, zircon, sphene, vivianite, molybdenite, kermesite* and *pyrite* are the other minerals mentioned in the article.——Schrauf[16] describes the *metacinnabarite* crystals of Idria, Austria, and discusses their origin as well as that of the associated mercury and cinnabar. The crystals have a density of 7.66. They form the outer coating of spherules that within are massive metacinnabarite. Their crystallization is regular and habit dodecahedral.—— Pearce[17] calls attention to the existence of tellurium and bismuth in nearly all the sulphides of the Leadville region.——Hills[18] recently exhibited to the Colorado Scientific Society pseudomorphs of malachite after azurite on which are implanted crystals of a second generation of the last named mineral with the same orientation as the original azurite.——Lacroix and Baret[19] find *bertrandite* at Mercerie in the Commune of La Chapelle-sur-Erdre, France. Its crystals are elongated parallel to the base, and are associated with orthoclase, albite, quartz and apatite in a granite.——The supposed sulph-antimonite of nickel, *korynite*, from Siegen, according to an analysis made by Laspeyres and Busz,[20] is a normal ullmanite, whose composition is:

[14] Neues. Jahrb. f. Min., etc., 1892, i, p. 1.

[15] Bull. Soc. Franç. d. Min., xiv, p. 318.

[16] Jahrb. d. k. k. geol. Reichsanst., 1891, xli, p. 349.

[17] Proc. Col. Sci. Soc. 1890, iii, p. 257.

[18] Ib., p. 258.

[19] Bull. Soc. Franç. d. Min., xiv, p. 189.

[20] Zeits. f. Kryst., xix, 1891, p. 8.

S	Sb	As	Bi	Fe	Co	Ni	Sp. Gr.
16.22	42.93	10.28	.68	.40	1.13	28.91	6.488

——A rose-red *tourmaline*[21] from Urulga, Siberia, has a composition corresponding to the formula 12 SiO_2, 8 Al_2O_3, 3 B_2O_3, 2(FeO MnO), $Na_2O(K_2O\ Li_2O)$, 3 H_2O.——Genth[22] has revised Kerr's report on the minerals of North Carolina, and has published the amended and enlarged revision as a Bulletin of the Survey. All the minerals known to occur within the State are mentioned and described briefly, and a synopsis of the mineral wealth of the different counties is given in tabular form.——The sixth part of Hintze's Handbuch der Mineralogie has recently appeared. It discusses serpentine, nepheline, kaolin, sodalite, cordierite and related minerals.——A series of new measurements of *wollastonite*[24] crystals from Vesuvius adds considerable to our accurate knowledge of their morphological characteristics.

---

[21] Stchusseff. Ib., xx, p. 93.

[22] Bull. U. S. Geol. Survey No. 74, Wash., 1891.

[23] Zeits. f. Kryst., xix, p. 604.